

Anthropological dimensions of virtualization

Dimensiones antropológicas de la virtualización

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Abstract

Virtualization is an ongoing process that is transforming daily activities and interactions. Such transformations will be reflected in irreversible changes in the organization and functioning of societies (socio-historical changes).

Virtualization is built by *reconstructing* information and communication functions that set us apart as human beings and that are specific to our societies. This text deals with the performance of these basic functions when the world is virtualized.

The possible scenarios of a virtualized future are diverse and sometimes opposed. They will depend on the social uses made of virtualization for the performance of such basic functions. Such uses will be guided by the plans of the mediators that eventually prevail in the virtualization process. In this work, such social uses and their plans to date are identified and the foreseeable effects in the future are analyzed. From this anthropological and socio-historical view, the practice and teaching of communication are examined, as a mediating instance of virtualization; and virtualization as a form of social production of communication. The existing social applications of the new benefits provided by virtualization, and those that can be envisaged, relate to the applications and functions of scientific and technological innovations that are typical of monopolistic and globalized social formations. For these analyses, theory and methodologies that are published in previous works are developed and applied. In the notes I include the links to some of these works that are accessible and open on the internet. But these developments are based on empirical research that has been developed for over five years¹, which originates the data that support what is told herein.

1 R&D Research: *Los usos del tiempo relacionados con la virtualización*. State Program for the Promotion of Scientific and Technical Research of Excellence. Reference CSO2015-63983-P. Principal Investigators Olivia Velarde Hermida and Manuel Martín Serrano. Development: from 01/01/2016 to 12/31/2020. It includes a representative survey of the universe of internet users in Spain, applied to 2801 people.

Keywords: interactions, face-to-face relationships, daily activities, motivations, affinities, aggressions, plans, virtualization, ICT, cybernetics, sociohistorical changes, humanization, social control, human communication, social action, information, organizations, institutions, social mediation, mediators, teaching of communication.

Resumen

La virtualización es un proceso continuo que está transformando las actividades e interacciones diarias. Tales transformaciones se reflejarán en cambios irreversibles en la organización y funcionamiento de las sociedades (cambios sociohistóricos).

La virtualización se construye reconstruyendo las funciones de información y comunicación que nos distinguen como seres humanos y que son específicas de nuestras sociedades. Este texto trata sobre el desempeño de estas funciones básicas cuando el mundo está virtualizado.

Los posibles escenarios de un futuro virtualizado son diversos y en ocasiones opuestos. Dependerán de los usos sociales que se hagan de la virtualización para el desempeño de tales funciones básicas. Dichos usos estarán guiados por los planes de los mediadores que eventualmente prevalezcan en el proceso de virtualización. En este trabajo se identifican dichos usos sociales y sus planes a la fecha y se analizan los efectos previsibles en el futuro. Desde esta mirada antropológica y sociohistórica, se examina la práctica y enseñanza de la comunicación, como instancia mediadora de virtualización; y la virtualización como forma de producción social de la comunicación. Las aplicaciones sociales existentes de los nuevos beneficios que brinda la virtualización, y las que se pueden vislumbrar, se relacionan con las aplicaciones y funciones de las innovaciones científicas y tecnológicas propias de las formaciones sociales monopólicas y globalizadas. Para estos análisis se desarrollan y aplican teorías y metodologías que se encuentran publicadas en trabajos anteriores. En las notas incluyo los enlaces a algunas de estas obras que son accesibles y abiertas en internet. Pero estos desarrollos se basan en una investigación empírica que se viene desarrollando desde hace más de cinco años, que da origen a los datos que sustentan lo que aquí se cuenta.

Palabras clave: interacciones, relaciones cara a cara, actividades cotidianas, motivaciones, afinidades, agresiones, planes, virtualización, TIC, cibernética, cambios sociohistóricos, humanización, control social, comunicación humana, acción social, información, organizaciones, instituciones, mediación social, mediadores, enseñanza de la comunicación.

Resumo

A virtualização é um processo contínuo que está transformando as atividades e interações diárias. Tais transformações se refletirão em mudanças irreversíveis na organização e funcionamento das sociedades (mudanças sócio-históricas).

A virtualização é construída através da reconstrução das funções de informação e comunicação que nos diferenciam como seres humanos e que são específicas de nossas sociedades. Este texto trata do desempenho dessas funções básicas quando o mundo é virtualizado.

Os cenários possíveis de um futuro virtualizado são diversos e, às vezes, opostos. Eles dependerão dos usos sociais feitos da virtualização para o desempenho de tais funções básicas. Tais usos serão guiados pelos planos dos mediadores que eventualmente prevalecerão no processo de virtualização. Neste trabalho, tais

usos sociais e seus planos até o momento são identificados e os efeitos previsíveis no futuro são analisados. Nessa visão antropológica e sócio-histórica, examina-se a prática e o ensino da comunicação, como instância mediadora da virtualização; e a virtualização como forma de produção social da comunicação. As aplicações sociais existentes dos novos benefícios proporcionados pela virtualização, e aqueles que podem ser previstos, relacionam-se com as aplicações e funções das inovações científicas e tecnológicas que são típicas de formações sociais monopolísticas e globalizadas. Para essas análises, são desenvolvidas e aplicadas teorias e metodologias publicadas em trabalhos anteriores. Nas notas incluo os links de algumas dessas obras que estão acessíveis e abertas na internet. Mas esses desdobramentos são baseados em pesquisas empíricas que vêm sendo desenvolvidas há mais de cinco anos, que dão origem aos dados que sustentam o que aqui é contado.

Palavras-chave: interações, relações face a face, atividades cotidianas, motivações, afinidades, agressões, planos, virtualização, TIC, cibernética, mudanças sócio-históricas, humanização, controle social, comunicação humana, ação social, informação, organizações, instituições, mediação social, mediadores, ensino da comunicação.

1. When virtualization transforms daily activities and interactions

Virtualization is an ongoing process that is transforming daily activities and interactions. These transformations have a socio-historical dimension, which means that, once they have been accomplished, irreversible changes will have taken place.

Irreversible transformations in the way of being and relating to people;

Irreversible reconfigurations of social organizations; both the most primary—including families and friends—and the most general—including churches and governments.

Our generations are fortunate to experience this transition: from a past that will cease to exist, to a future, the configuration of which we cannot predict². We cannot predict what the virtualized future will be like, but we can make forecasts based on already proven knowledge and on other that will be verifiable over time. Contributions expected from social researchers (as Comte stated, “*Knowing to foresee*”³). We have this knowledge and we have methodologies to identify which are the scenarios of the future—which are possible and impossible—when the future is virtualized⁴. And we have criteria—anthropological, sociological, and eventually ethical and humanistic—to differentiate, in those possible scenarios, those that are desirable or undesirable.

2 “Virtualization will continue to help transform humanity and its environments for generations. It is the modification of social practices that best identifies the multiple sociohistorical transformations that are underway: changes in the economic system (from industrial capitalism to globalized monopoly), communication technologies (from audiovisual to referential), interaction systems (from unidirectional to multidirectional).” See Manuel Martín Serrano (2019) *Communication and information in a virtualizing world*. <https://eprints.ucm.es/56468>

3 Comte’s paradigm is still valid on the prospective functions that knowledge has to fulfill in social sciences. See Manuel Martín Serrano (1976) “Comte, el padre negado. Orígenes de la deshumanización en las ciencias sociales Introducción” <http://eprints.ucm.es/13224/>

4 A more detailed explanation of these resources and scientific approaches can be consulted in Manuel Martín Serrano (2013). *La construcción científica de los estudios de la comunicación. El enfoque teórico y los contenidos que diferencian a las ciencias de la comunicación de cualesquiera otras ciencias*. Revista Latinoamericana de Ciencias de la Comunicación (Journal), 10 (18), 16-28. See <https://eprints.ucm.es/24138/>

It turns out that those of us who work in communicology can contribute with relevant knowledge to make such forecasts and to assess such scenarios. Because virtualization is built by reconstructing the functions of information and communication, as I intend to show throughout this text. This contribution is raised at two levels:

- *At benefit level.* Explaining the applications of virtualizing communication and information.
- *At function level.* Examining how virtualization may affect the performance of the functions that information and communication fulfill ever since human societies exist.

Such functions are anthropological and social. They are basic functions because they have to do with characteristics that distinguish us as human beings and that are specific to our societies. This is what this intervention is about.

2. The evolutionary dimensions of virtualization.

Virtualization refers to the use of infrastructures and programs so that information and communication accompany or replace face-to-face activities.

Virtualization is the culmination of an evolutionary orientation, which leads to *something being indicated when doing something to others, or with others*⁵.

During the course of evolution, communicative indications control and even replace physical actions and movements, which is the evidence that the use of shared information fulfills an adaptive function⁶.

When virtualized, communication continues to have the same evolutionary functions:

- *In interactions*, it fulfills the function of differentiating relationships, depending on whether they are endogroup or exgroup.
- *In the environment*, communication is used to possess the space and to use its resources.
- And the *species in which there is social division*—including ours—use communication to organize activities and to make hierarchies explicit⁷.

Differentiate interactions...

5 Communication is a modality of expressive interactions in which the Actor resorts to information to make indications to another or other Actors. All communicative behaviors are expressive performances. That is the criterion that serves, precisely, to differentiate communication from the rest of interactions. This is explained in Manuel Martín Serrano (2007) *El origen evolutivo de la comunicación: transformación de los usos significativos de la información (precomunicativos) en usos indicativos (comunicativos)* <http://eprints.ucm.es/13108/>. A chapter from the book Martín Serrano, M. (2007) *Teoría de la Comunicación. La comunicación, la vida y la sociedad*.

6 While moving up the evolutionary scale, animals employ a greater number of prompts (expressive actions) in interactions to replace the executions used by less evolved species. *La transferencia de la ejecución a la indicación en los comportamientos humanos* (Manuel Martín Serrano, 2007) is implicit in the functions of human communication. It has made our species “the only one specialized in transforming tasks into indications”. See <http://eprints.ucm.es/13105/>

7 See Martín Serrano, Manuel (2011) “*Comunicaciones instrumentales y referidas a los efectos de la interacción*” <http://eprints.ucm.es/13104/>. A systematic exposition of the origins, characteristics and functions of human communication is available in collected publications *Sobre la comunicación* at <http://eprints.ucm.es/13289/>

... occupy the environment...
 ... organize activities...
 ... reproduce hierarchies...
 ... these are evolutionary developments of social behaviors, which preceded the existence of the human species; but which condition the viability of our societies⁸.

These behaviors are invigorated by motivations. *Motivations prepare organisms to have and trigger the behaviors that are necessary to achieve certain goals.*

Specifically, in interactions, there are two primary motivations: affinity and aggression.

- *Affinity* is the motivation that grants belonging to a group; that leads to reproduce, to bring up, to protect “our people”;
- *Aggression* is the motivation that mobilizes in defense of one’s life, and that leads to compete for spaces and resources.

It is understood that <affinity/aggression> are opposing provisions that are complementary and equally necessary.

Communication initially appeared and evolved to control the use of these primary motivations. To resort to one or the other, depending on with whom and in what situations we are⁹.

To conclude this reference to the evolutionary dimensions of virtualization:

Humans have the ability that our behaviors are determined by plans:

“Plans are the alternative purposes, which guide the various actions that affect the functioning and transformation of societies. These purposes correspond to the norms, beliefs and values that regulate the existence of communities. For example, plans will be regulated according to religious beliefs, political programs, or economic models¹⁰.

Virtualization can be understood as the technological innovation that makes it possible to regulate social action and the performance of social organizations, according to any plan, using information and communication.

The actions that operate *with the action that transforms, with the information that builds up, and with the social organization that links to introduce a plan, are the ones that I have called “social mediations”*¹¹.

8 Available in Martín Serrano, Manuel (2011) *articles that analyze and relate evolutionary and cultural analysis: Sobre los comportamientos, modalidades y desempeños* <http://eprints.ucm.es/13288/>

9 Human communication is a component of the anthropogenesis that has emerged, and has been configured, when it is institutionalized, to control the contradictions that have been happening between natural impulses and social regulations. This is why it is directly involved in the appearance of human beings and in their transformations. See Martín Serrano Manuel (2009) *La comunicación en la existencia de la humanidad y de sus sociedades*. <http://eprints.ucm.es/13112/>

10 The values and the rest of social regulations try to control, at first, with greater or lesser success, the natural laws that affect the reproduction and extinction of communities. For example, in a demographic context of surplus population, Malthusian demographers show that the vow of chastity is a human alternative to the option –animal and also human– of infanticide. The sublimation of sexuality as delivery to the divine beloved has bequeathed us the poems of Saint Teresa and one of the religious orders that reduces the number of reproductive women. There is an obvious link between such beautiful communication materials and the promotion of vocations.

11 I refer to “social mediations” as those affectations with which we try to direct our fate, (...) using communication to produce and reproduce our societies. Social mediations are involved in the orientation of actions that, when transforming the world, they preserve it or put it at risk; in shaping the organizations that liberate or oppress; in representations that humanize or dehumanize”. (...) The paradigm of mediations is a theoretical and methodological development to work at that level of adjustment, in which linking, shaping and transforming are interdependent processes” See Martín Serrano Manuel (2009) *La teoría de la comunicación, la vida y la sociedad. Entrevista a*

3. Possible virtualizations and inappropriate virtualizations

Technically, mediators can now virtualize according to their plans,

- any interaction that does not require affecting others physically;
- any activity that does not require physical presence in a certain place or time;
- or any activities in the transformation of the environment that do not involve active participation¹².

But it will be convenient to take into consideration that face-to-face relationships are not virtualizable when they fulfill functions in human development. Thus, face-to-face interactions are necessary:

- For the development of biological and cognitive capacities. Among others of all the capacities that require physical contact, including the development of gestural and verbal communication.
- Face-to-face interactions are essential for the configuration of identities and social distances during this period of children's development, which corresponds to ontogenesis,
- All social rituals, by definition, require face-to-face participation: in the rituals of birth and mourning: initiation, courtship, betrothal; festive, expiatory, rogatory (examples, from a catalog as extensive and varied as life and death are in each society).
- Likewise, there are physical activities in the management of the environment, which are essential for the development of orientation in space and time.

These activities should be preserved from inappropriate virtualizations¹³.

4. Controls of the plans of mediators who operate communicatively.

During virtualization, the ancestral need to control the plans of mediators persists, as they can orient the primary motivations (affinity and aggression) in ways that the community considers inappropriate.

In general terms, it is not considered appropriate to open affinities to individuals other than one's own group, nor use aggression against members of the group itself. Although on some occasions these behaviors are promoted when they are considered advantageous. But, since these are risky actions, each society tries to control their development in one way or another, depending on its values and circumstances. In fact, there are mechanisms to control these primary motivations, whose mission is to preserve

Manuel Martín Serrano <http://eprints.ucm.es/13109/>

12 Virtualization encompasses, in addition to communicative interactions, any aspect of social production and reproduction, which is concerned with the production, distribution and use of information. This is why I consider virtualization to be the modification of social practices that best identifies ongoing socio-political changes. For more details, please see Martín Serrano, Manuel (2019) *La comunicación y la información en un mundo que se virtualiza. Desarrollos y funciones previsibles* at <https://eprints.ucm.es/56468>

13 See Martín Serrano, Manuel (2019) *La comunicación y la información en un mundo que se virtualiza. Desarrollos y funciones previsibles*. <https://eprints.ucm.es/56468>

communities from actions that compromise social reproduction.

Such controls reorient affinities –mainly, the attractions operating in sexual relations– according to the interests of the community, so that they contribute to biological reproduction; or so it is postponed. These mechanisms also redirect aggressive motivations. Mainly, so that community members know how to differentiate between the treatment that should be reserved for *our people* and the one that can be applied to *the rest*. And if necessary, so that, in defense of their own people and their own property, *ours* are willing to kill and die.¹⁴

I have brought up these controls of the primary motivations, because they operate communicatively. First, during ontogenesis and thereafter in the course of socialization:¹⁵

As it is known, ontogenesis refers to a stage of life that begins with birth. As it was said, it is the time in which we acquire communication skills and when, at the same time, we build our identity, internalizing the values of the group we belong to¹⁶. *Socialization* provides rational criteria –or at least rationalized– throughout life so that the satisfaction of impulses is carried out in the forms and through the established channels; and so that we repress ourselves, in the rest of the occasions¹⁷.

Let us remember:

Identification with the group,
self-repression,
rationalization of decisions
and behaviors,

these are guidelines that make the organization and functioning of our societies possible¹⁸. This is the evolutionary and cultural time frame that corresponds to the basic functions performed by human communication. This performance will determine the progress of our virtualized future, either towards humanization –an unfinished, endless

14 See Martín Serrano, Manuel and Velarde Hermida Olivia (2015) *Violencias sociales. Los agresores y las víctimas que son menores* at https://www.unebook.es/es/ebook/violencias-sociales_E0002574375

15 Since the origins of human societies and throughout history, communication has provided visions of the community and the surrounding world, which guide the collective effort to reproduce social organizations and their identities. More information in Martín Serrano, Manuel (2009) Communication in the existence of humanity and its societies. <http://eprints.ucm.es/13112/>

16 Ontogenesis is the first factory of identities, and the first time that communication, while it is still interpersonal, incorporates identities as inseparable components of symbolic universes. Developed in Martín Serrano, Manuel and Velarde Hermida, Olivia (2015). *La mediación comunicativa de las identidades individuales y colectivas*. Revista Latina de Comunicación Social <http://www.revistalatinacs.org/070/paper/1059/29es.html>

17 The primary impulses are formed in ontogenesis and during socialization: “a very important part of the achievements and gratifications that these acts provide, are labeled either as “allowed” or as “prohibited “. These evaluations are incorporated into the expressive treatment of such actions. They are introduced in the way that they are mentioned and in the terms with which they are described. “The reference to what one wants to do is obscured, or is unfolded, or replaced, as an expression of what must be done. See Martín Serrano, Manuel. 2007 *Teoría de la comunicación. La comunicación, la vida y la sociedad*. Madrid: McGraw-Hill p. 195 References in DIALNET 2018 - Manuel Martín Serrano sobre la *Naturaleza de la comunicación* <http://eprints.ucm.es/11061/>

18 The institutions that socialize reproduce and maintain such guidelines. It is a mediating task that families perform from our birth and that, at the time, reiterate the mythical narratives (deeds and parables) about who we are, where we come from and where we are going. Narrations that are repeated in religion and stories, later in schools and in the media. The handling of these guidelines can be read in Martín Serrano, Manuel (1998) “*La gesta y la parábola en los relatos de la comunicación pública*” <http://eprints.ucm.es/11061/>

task— or towards dehumanization, whose final result would be our self-extinction.¹⁹

Let us underline, the main function of human communication is to control the use of these primary motivations. The use of affinities, of aggressions, which can irreversibly transform societies and even human beings. And now, when communicative virtualization is in process, it is the moment to examine how mediation is being performed with these motivations. Because such mediations can choose between different social transformations that are equally possible, in spite of not being equally desirable options.

In fact, mediation is already taking place with virtualization, among other options,

- to *reproduce social distances* within the group itself and with other groups; or to alter them;
- to *channel daily activities* towards productivity, or alternatively, towards pleasure;
- to *harmonize—or to oppose— human plans with the dynamics of nature*;
- to increase *the autonomy of community members* or, on the contrary, to increase social control.

We know that the result of these social transformations will be determined by the social uses that are made, which are already being made, of the technologies they virtualize²⁰. That is the analysis that I am going to offer you below.

5. Social uses that are being made of virtualizing technologies.

a. How personal relationships are being mediated when they are virtualized.

Ecologists differentiate three types of personal relationships among interactions:

- *Intimate relationships*, which are reserved for the members of the couple.
- *Cooperative relationships*, which are maintained with family and friends, and
- *Instrumental relationships*, for interactions with acquaintances who are not friends and with strangers.

As can be seen, these differences are based on the greater or lesser importance of *the bonds*, which implies that in personal relationships there is a system of social distances²¹.

This system is represented by three concentric circles. These circles differentiate the

19 During their existence, the preceding humans progressed towards humanization. Some of them, like *Homo Erectus*, managed to last for at least a million years. Which is not bad at all. However, like all other species, they disappeared, but we have not. This shows that they could not or did not know how to mediate with the appropriate plans, to survive the transformations of the environment and its disasters, the imbalances of their organizations, the wrong uses of their technologies or the humanicidal competitiveness for spaces, women or other scarce goods. As we have been warned, one must know history, so as not to repeat it when the world is virtualized.

20 See Martín Serrano, Manuel (2015) *Mediaciones del conocimiento y de la información que humanizan y que deshumanizan* <https://eprints.ucm.es/56472/>

21 “Social distances” is an analysis introduced by Von Uexküll, founder of the Animal Ecology: Von Uexküll, J. J. (1909). *Umwelt und Innenwelt der Tiere*. See <https://link.springer.com/content/pdf/bfm%3A978-3-662-24819-5%2F1.pdf> I have proven that social distances are a manifestation of the “affinities” in the human species. I have used this term to refer to an inherited pattern regulating interaction—both intraspecific and interspecific—according to the bonds. Affinities over-determine the transformation of animal communication into human. See *Lo específicamente humano de la comunicación humana* in <http://eprints.ucm.es/13111/>, a chapter of the book Martín Serrano, M. (2007). *Teoría de la Comunicación. La comunicación, la vida y la sociedad*.

perceptions we have of how relationships with other people affect us, at a cognitive, affective and behavioral level.

- The closest circle is only occupied by the partner.
- The intermediate one is occupied by family and friends.
- The most external one, by acquaintances and strangers.

Those who occupy the inner circles also perform functions that are typical of the outermost circles. For example, with the partner, in addition to intimate relationships, cooperative and instrumental relationships are also maintained.

But it is not expected that these movements through the circles take place in the reverse direction. For example, it is not accepted that acquaintances and strangers; friends and family establish intimate relationships with the partner. By maintaining the differentiation of interactions among community members and non-members, we contribute to collective and individual security, and to preserving the group's symbolic and material resources²². The mediators of these interactions are the communicators themselves, both in face-to-face and virtual interactions.

When these face-to-face interactions are virtualized, in theory, it could happen that such system of social distances is altered. For instance, to discuss issues with stranger that are typically discussed with friends. This has already been verified. The research group led by Professor Olivia Velarde has identified the objects of reference which are the basis of communication on the internet, depending on the bond. As a result, until now, the same system of social distances regulating face-to-face interactions is operating in virtual ones²³.

Conclusion: when interactions are virtualized, the ethnocentrism/exocentrism pattern persists²⁴.

But the network facilitates instrumental activities and the communicators are taking advantage of that benefit. As mentioned, the instrumental content is specific to relationships with acquaintances and strangers. But they can also be discussed between the members of the couple, by relatives, and by friends. Well, most of the content that is exchanged online with partners, family and friends is instrumental.

b. How the activities of daily life are being mediated when they are virtualized.

22 In each culture the system of social distances is reinforced with a network of contact rites and protocols. Relationship rules that make explicit the proximity or distance of the bond, with the greater or lesser physical closeness; with courtesy rules manifesting this, such as formal or informal address. These complex regulations can be reasonably included in the competition for productive and reproductive resources for those who are "our people" and excluded for those who are not.

23 See Velarde, O., Bernete, F. & Casas-Mas, B. (2019). *Las interacciones virtuales con personas conocidas que no son amigas*. <http://www.revistalatinacs.org/074paper/1351-34es.html> for further specific developments; and Velarde, O. & Casas-Mas, B. (2018). *La virtualización de las comunicaciones interpersonales*. <https://revistachasqui.org/index.php/chasqui/article/view/3406/0>

24 Ethnocentrism / exocentrism rule the values that legitimize solidarity behaviors with our people in the stories; regardless of the reasons or of lack thereof mobilizing them. This link is reinforced in the story by the most important of social needs: acceptance. The narrative construction of "our people" implies the opposing conception of "not-our people". Described in Martín Serrano Manuel (2019) *Cuándo y cómo se hizo científica la Teoría de la Comunicación* <https://eprints.ucm.es/56254/>

Industrial Revolutions create interdependencies between the activities of daily life. Such synergies imply that some activities will determine the others. The activity that has historically over-determined all the others has been productive work (remember that work is considered productive when it is economically remunerated). For example: after the First World War, women were incorporated into productive work. Since then, housework and childcare are being shared between both parents (activities that are contingent, as they are valued as unproductive).

The current macroeconomic model, as we know, is characterized among other things because new technologies are used as a function of productivity. The virtualization of work so that it is productive continues to be the most determining factor in daily activities. For instance, such determination exists when the work activity is carried out at home, occupying the spaces, during the times that were reserved for non-productive tasks, such as leisure, or caring for family members.

Virtualization becomes more profitable in the labor market, increasing the overwork of those who have a job and the structural unemployment of those in occupations that virtualization has made obsolete.

- Overwork, as is known, results in the least possible number of workers being employed as many hours as possible, even though there is a reserve of qualified unemployed professionals to carry out this activity. For example, this is the case in healthcare in our country.
- And structural unemployment becomes chronic when other alternative tasks are not generated, whether or not they are productive.

Capital investment is concentrating on the virtualization of productive work, and it is originating in activities that are either not virtualizable, or that are not profitable if virtualized. And in that limbo of occupations that are not economically profitable, there is a large number of essential tasks to ensure social reproduction. These include palliative activities, which address the damage caused by hunger, massive migrations, and, who would tell, as in the Middle Ages, epidemics... As we know, these functions are being assumed mainly by the fourth sector; NGOs. For example, Doctors Without Borders.

c. How the activities that affect our physical and technological environment are being mediated when they are virtualized.

Virtualization is used to program the state of the environment and the functioning of our equipment. The application for these purposes of cybernetics has led to an important change in the benefits and in the functions of the tools that are manufactured for such virtualized tasks because cybernetics looks for the models to program the functioning of technological systems in natural systems –physical, biological, behavioral and cognitive.

Cybernetic devices can be programmed to do things humans do... this implies that humans do less frequently or stop doing what our tools do for us. Certainly, cyber-

equipment is designed and programmed to operate, depending on the situations or user demands. But this cybernetic autonomy implies that, when the cyber-device chooses one among its possible actions, it is applying a transferred mediation. These mediating uses of cybernetic equipment will be the more important, the greater their degrees of freedom.

When we are surrounded by virtual mediators; for instance, robots designed to satisfy our needs –biological, psychological, sexual; it is foreseeable that emotional transfers will be generated from humans to machines because the gratification of needs, when it is pleasant, generates endorphins. Transmitters that favors attachment. If the attachment is transferred to the cyber, it will become a recipient of affects, the more important for its user, the more primary the needs the robot satisfies; and the more addictive, the more difficult or unsatisfactory the natural way to satisfy such needs is. And it seems that the design of these robots is made so that this transfer takes place, when in their appearance they are made to be similar to the humans they replace. And sometimes more attractive.

Perhaps, the last stage of the virtualization of the activities that affect our environment is not that the machines have human features, but we humans have machine features. So that machines and humans work together

d. How the activities regulated by organizations and institutions are being mediated. when they are virtualized.

Digital networks contain virtual memory where everything that can be computerized can be stored. These computing features, together with the interactive ones, make it possible to *virtualize intellectual co-production*. There are already collaborative ways of using knowledge in networks, called “connective intelligence” and “collective intelligence”.²⁵

And these computer and interactive features also make it possible for activities and functions performed by public and private institutions to be transferred to users. And so, it is happening, to the point that some organisms are converting themselves into computer programs. But the functions that are being transferred are generally administrative. For example, when the Treasury forces taxpayers to download, fill out and upload their tax returns in the corresponding applications. Something equivalent happens when face-to-face banking becomes online. These virtualizations are becoming obligations that take time away from face-to-face activities.

What public and private institutions do not transfer is the control they exercise over users. Virtualized controls can be differentiated into three types, depending on their plans:

1. Controls of private information that circulates on the net in order to know the

²⁵ The transcription and transmission of historical memory results in the fact that humans are the only species that does not need to mutate to adapt to the transformations of its environment: “During humanization, a system that transforms itself to preserve balance (Nature) is contrasted with others that change balance to transform itself (human societies). What regenerates a (natural) order that does not respond to any plan, and what assigns plan that alter the order are opposed. Two processes, the one that Nature follows in its evolution and Humanity in its history, that operate with information. In Nature, because when it evolves, it becomes more complex. In societies, because they become more aware that they are not just Nature”. Martín Serrano, Manuel (2007) *Lo específicamente humano de la comunicación humana*. <http://eprints.ucm.es/13111/> from the book *Teoría de la comunicación. La comunicación, la vida y la sociedad*.

preferences and behaviors. They are the uses that use and abuse virtualization, to trade products in the captive market of network users (remember the information that Google retains and uses about our habits, preferences and locations).

2. Controls imposed for security reasons. For example: digital passports and observation cameras, which create databases on a global scale.
3. Clandestine controls performed by government agencies whose function is precisely to control information without being controlled.

The prior digitization of our data is allowed *ex officio*. Although there are laws that allow erasing some of them upon request and *a posteriori*. On this issue, legislators have to choose between two competing options: public safety or privacy. In practice, this aporia is managed by controlling both citizens and those who control them.

6. Foreseeable effects of current social uses of virtualization.

I will focus this analysis on the perspective of the socio-historical changes that are underway.

a. Foreseeable effects of the virtualization of interactions.

The content analysis shows that, when interactions are virtualized, social distances continue to be reproduced according to the greater or lesser proximity between the communicators. It is concluded that interactions through digital networks promote endocentrism, in the same way face-to-face interactions do.

Virtual endocentrism preserves, like face-to-face, the value of affinities. Such fondness is the emotional foundation of the bonds in couples and between parents and their offspring. And it also preserves endocentrism, trust, on which cooperation between family and friends is based.

But, at the same time, the virtual management of social distances is promoting distancing, mistrust, towards those who are labeled as “the outsiders” as “the different ones”. In social networks “the different” are those who come from other places, speak other languages, hold other beliefs. Or, simply those who display traits in the social network that do not identify “our people”. They are the scapegoats to whom to transfer aggressiveness, generating existential frustrations. In most cases, economic and labor frustrations.

So, the question is; when interactions are virtualized:

How to operate with social distances to preserve affinities while promoting the inclusion of outsiders in the broader circle of humanity.

b. Foreseeable effects of the virtualization of activities of daily life.

It was said that the virtualization of these activities is over-determined by productivity. Certainly, productivity is necessary to support a population that is growing out of control. And the production of these goods and resources requires individual energies to

be applied to work that are oriented towards the satisfaction of desires. This substitution of pleasure for work is achieved, as Freud teaches us, by self-repression, or by imposed repression, of natural impulses. And we know that the repression of desires, in all its forms, generates frustration; and frustration leads to aggression.

We know what the strategies are being applied since the beginning of the current system (back in the 70s) to prevent such aggressiveness from sweeping away social cohesion:

- *When self-repression works*, the strategy consists of transferring the aggressions as well as the desires:
- In ritualizing and releasing collective aggressiveness in the practice or following of any sport:
- And in defusing individual frustrations, eroticizing the goods and services offered by the market as objects of desire.
- *And when these transfers do not work*, and self-repressions trigger the consequent neuroses, the strategy consists in having mediating resources (psychological, affiliation, addiction) so that the neuroses are socially *correct*... These are the neuroses that transmute conflicts against the current order in interpersonal conflicts²⁶.

And if, despite everything, aggressiveness does not self-repress and erupts –verbally or physically; it is aimed at others. At the proper “others”.

Public communication performs this mediating function of controlling and transferring attacks. Currently, it fulfills its function when in the accounts it is shown that existential crises, which accompany virtualization, are inevitable and temporary conditions for the incorporation of technological innovations that can satisfy material and social needs²⁷.

But it is rarely said in these accounts that this well-being will be unattainable, if the intended plan is to use virtualization to increase the production and consumption of goods and services,

- that deplete natural resources,
- that affect climate change;
- that are destined for the unstoppable rearmament of the armies.

Other virtualization jobs fit into daily activities that would increase productivity. Social uses that divide work and spare time, without dividing society between more or less stable *employees –stressed–* and *unemployed* that cannot be employed *–desperate*.

26 These mediations that handle social contradictions as individual imbalances feed prejudices, stereotypes and fears; for which they link individual and collective security to ethnocentrism, xenophobia and violence. Martín Serrano, Manuel (2006) *La comunicación que globaliza la pobreza cultural*.” <http://eprints.ucm.es/13244/>

27 Mediations are used so that people assume that a situation of permanent crisis is normal, and even socially advantageous. It is proposed that individuals and groups “change” as many times as necessary and as required to adapt to crises, without questioning the global system. See Martín Serrano, Manuel (2007) *Prólogo para “La mediación social” en la era de la globalización*. <http://eprints.ucm.es/10651/>

Demographers write that distributional policies also contribute to birth control, which is another way to decrease the demand for irreplaceable resources. And since the advent of contraceptives, self-control of pregnancies (unlike work that represses) is neither repressive of sexuality, nor dangerous for the lives of women.

So, the question is, when the activities of daily life are virtualized, if it is no longer necessary to maintain levels of repression, which are unleashing so much frustration and increasing social violence so much:

Consider how to ensure that the activities of daily life are productive; and at the same time that there is time –and resources– for activities that are not:

Time for playing during childhood and the rest of life,

To make love and not war.

For family life, to cultivate friendship,

To share knowledge and develop creativity.

I can put it better, by glossing what the Fratelli (utopians of the 16th century) wrote and later recovered by Karl Marx (utopian of the 19th century):

Let everyone work virtually in tasks that are adapted to their capacities; so that everyone can receive according to their needs, goods and services –material, or immaterial²⁸.

c. Foreseeable effects of the virtualization of the activities that affect our environment.

It is the continuation of the resource that humanity makes to knowledge and tools, to control the spaces in which our existence unfolds and to reduce physical effort. We know that the use of tools has influenced humanization. It has been decisive in coordinating the crafts with the vision. And in the development of cognitive abilities. Mainly, in the development of the categories of time and space, of function and dysfunction, of causality and of effects. These neurological and cognitive advances have contributed to the increase in communication, gestural and verbal abilities.²⁹

Well, currently it is not clear whether the virtualization of the activities that affect our environment will continue to promote humanization³⁰, because the virtualization of environments and tools leads to cybernetization

And with it, it is the instruments and not the humans who program: it is the instruments and not the humans who handle the tools.

Eventually, it is the tools, not the human, the ones satisfying our needs for health, relational, or sexual care³¹.

28 Since the 16th century, utopias have related the use of communication with humanization, from the perspective of socio-historical changes. It is analyzed in *Publicaciones de Manuel Martín Serrano sobre cambios sociohistóricos, utopías y contrautopías disponibles en E-Prints*. (2011) E-Prints Complutense. Link: <http://eprints.ucm.es/13291/>

29 André Leroi-Gourhan states in *"Evolution and technique"* that technologies can capture an evolutionary sense similar to that existing in living organisms. He points out the analogy between the invention of new technologies and mutation; between the conservation of traditional techniques by a human group and the transmission of acquired characteristics. See in the presentation of this work: Martín Serrano, Manuel (1989) *Del universo teórico del gesto al universo teórico de la praxis*. "<http://eprints.ucm.es/13114/>

30 "Humanization is the production of tools, culture and diverse and complex social organizations. Organizations regulated by norms, beliefs and values. Humanization (...) will continue with the transformation of societies, until our species disappears". In Martín Serrano, Manuel. (2012). *"De la libertad para hacer ciencia y de la ciencia para la libertad"*. <https://eprints.ucm.es/56255/>

31 Cybernetics is at the same time an instrument of knowledge and intervention on the systems whose organization,

As long as cybernetic tools do the things that we now do and will no longer do, the disuse of capabilities that have made us human will occur. Such transfers can generate irreversible dependencies.

The uses of robotics that virtualize human actions and relationships may make us substitutable, incomplete, or even unnecessary. And since robots are programmable, they are basically more efficient and controllable than people. Therefore, it could easily be expected that someone would come up with the idea of robotizing humans. Cybernetize ourselves by implanting chips in our bodies and other devices to connect with machines. Or by modifying the genome. That is the purpose of Post-Humanism, whose plans are explicit. It is about replacing our species with robotic posthumans³²

So, the question is, when the activities that affect our environment are virtualized:

Promote the uses of cybernetics, which contribute to our *knowing how to be in the world*, which are applications of virtualization whose plans are to make compatible the social uses of the land –housing, agricultural, industrial– with virgin spaces, their plants and animals.

Applications that establish a synergy and not a competition between the *natural things* that regenerate and the *manufactured objects* that pollute.

And on a Promethean scale, applications to continue the exploration of unknown territories. Now in the spaces of the cosmos and the microcosms.

d. Foreseeable effects of virtualization of activities that are regulated by organizations and institutions.

The integration of digital memories in virtual communication systems is an extraordinary progress, as it makes it possible to share the immense intellectual heritage of our species. This use of virtualization will make it the most important technological innovation in the field of knowledge, since the information was transcribed into written memories³³. The access to universal knowledge will bring, if the predictions of the Illuminists are met, the enlightenment of minds. And with it, the improvement of existential options and people's autonomy³⁴. Such computerization benefits have another face, as instead of favoring autonomy, they may compromise it.

*Because everything that can be computerized
can be encoded.*

functioning and transformations can be controlled. Its characteristics and applications can be consulted in Martín Serrano, Manuel. (1978) "Nuevos métodos para las ciencias que operan con sistemas finalizados por la intervención de los agentes sociales" <http://eprints.ucm.es/13252/>

32 Posthumanist programs are designed to provide human beings with physical and mental capacities that our nature does not possess. They propose to reopen evolution to alter evolutionary patterns that regulate ontogenesis. This is analyzed in Martín Serrano, Manuel. (2019) *La comunicación y la información en un mundo que se virtualiza. Desarrollos y funciones previsibles*. <https://eprints.ucm.es/56468>

33 For the first time since Modernity, the Communication System has the appropriate technological infrastructure and functional structure to put information at the service of more participatory, creative and much more equitable interactions. It is analyzed in Martín Serrano, Manuel (2004). *The social production of communication*. Madrid, Editorial Alliance. Synopsis and very complete analysis available at Manuel Martín Serrano on DIALNET *Recopilación de sus escritos y de estudios de otros autores sobre Teoría social de la comunicación*.

34 The relationship between access to universal knowledge and the development of knowledge and freedoms is an idea and an objective of the Illuminists. This purpose is recovered and analyzed when the world is virtualized, in Martín Serrano, Manuel (2015) *Transformación y aplicaciones actuales de las investigaciones de la comunicación*. <https://eprints.ucm.es/56509/>

*And everything that is encoded,
can be controlled.*

I have written that it is a postulate, *that, if we are computerized, we are controlled*³⁵.

Computerization facilitates the control of institutions over individuals and groups. For the sake of security, this inquisitorial use of virtualization already seems as widespread as it is inevitable. Thus, the conditions for global insecurity are being created.

So, the question is, when activities that are regulated by organizations and institutions are virtualized:

How to use computerization to continue clarification and autonomy. And at the same time, control those who under the pretext of security are planning a Big Brother.

7. Characteristics of the mediating practices that I have described³⁶.

- Virtual mediation is occurring during ontogenesis, and in the course of socialization.
During ontogenesis, it is likely that virtualization is influencing cognitive maturation and internalization of identities. And virtualization is reinforcing the socializing function of communication institutions.
- All traditional mediators are involved in the socializing uses of communication and information when virtualized; and new ones have been added. Some act personally on social networks, while others program their mediation action on cybernetic devices.
- The control of primordial impulses –affinity/aggressiveness– continues to determine the plans of virtual mediators.
- Such mediations have social implications, insofar as they are used to guide the organization and operation of companies. And there is the plan that they have anthropological incidents, modifying hereditary characteristics of human beings.
- In the areas whose virtualization I have analyzed, these dynamics may follow alternative orientations. It will depend on what are the plans –humanizing or dehumanizing– that end up prevailing.

I list the options that have been identified in the analysis of the social uses of virtualization, which I have described in my presentation:

- More peaceful societies with constructive relationships, or more violent and destructive relationships.
- More just and supportive societies, or more unfair and unsupportive.
- Use of the productivity provided by ICT, to distribute work and fill with content the spare time that will be available; or use of the productivity to deprive the economically surplus population of employment, and to empty content, leisure more and more integrated with work.
- States that transfer their power to citizens or that increase their pressure and control.

35 Postulate proposed and described in Martín Serrano, Manuel (1985) *Innovación tecnológica, cambio social y control social*, <http://eprints.ucm.es/11064/>

36 To consult systematic analyzes of these mediating practices, please see the compilation of publications by Manuel Martín Serrano on Information and communication when the world is virtualized at <https://eprints.ucm.es/57628/>

- Societies of autonomous and supportive subjects, or dependent and unsupportive subjects.
- A humanity that enhances its innate abilities with the use of cybernetic equipment or a robotized post-humanity with implants and genetically manipulated³⁷.

8. The practice and teaching of communication when it is virtualized.

When communication is virtualized, it loses its autonomy³⁸. It accompanies other information sources in the virtual space and is incorporated into face-to-face actions that are carried out in the physical space³⁹.

The links communication has when virtualized with social actions have never been stronger. This integration facilitates the function of social control communication has⁴⁰.

And when communication, which used to be face-to-face, is derived from virtualized communication, it becomes the main way of promoting the plans of institutional mediators. The interests of the institutions are prioritized with the greatest efficiency, when those same plans are reproduced and reinforced in social networks⁴¹.

In the universities, as professors who train those who are going to be professionals of public communication, we are involved in the production and reproduction of representations about the nature of virtualization;

- of its uses,
- its functions
- and its effects.

The technological transformation in the field of communication requires that our study programs prepare to *know how to do*. But what distinguishes university teaching from that provided in professional schools is that knowing how to do is an opportunity

37 These mediating options were identified in the R&D "The social production of communication and social reproduction in the Era of Globalization" (2011-2014), and they are being continued in subsequent investigations that are underway. A more detailed presentation can be read in Olivia Velarde Hermida and Belén Casas-Mas (2018): *La visión humanista de la tecnología comunicativa* in G. González Alcaide et al. (coord.) *La investigación actual y sus retos multidisciplinares*. p. 423- 438. Barcelona. Publ. Gedisa.

38 To cover the study of behaviors, two theoretical developments are necessary: one for executive behaviors and the other for expressive (communicative) behaviors. Both are integrated into the more general space of the Theory of Behaviors. See Martín Serrano, Manuel (2011) *Un modelo de los comportamientos interactivos que incorpora la comunicación y la ejecución*. <http://eprints.ucm.es/13102/>

39 "The integration of the different uses of information in a single system (computer-communicational) is just one phase of a broader process... We have to face a mega-system that includes these three components: (information - organization - action) ... The information is aimed at penetrating everything that is programmed and everything programmable; that is, at each natural or artificial level, material or immaterial, that is susceptible to being intervened by man" Manuel Martín Serrano, 1992. " *Los cambios acontecidos en las funciones de la comunicación y en el valor de la información*" p. 13-20. See at <http://eprints.ucm.es/13240/>

40 The relationships between social actions and communicative indications and the transformations of some types of acts into others are essential processes in the transformations of anthropogenesis. They are analyzed in Martín Serrano, Manuel 2008: *Acción/comunicación, en las ciencias y en los comportamientos*. <http://eprints.ucm.es/13106/>

41 In order for us to be granted belonging and to be considered a member, the virtual group requires that we "identify ourselves". That is to say, that we display the features of an identity –real or invented– that coincides with the identity –assumed– that differentiates and distinguishes the reference group. Analyzed in Martín Serrano, Manuel (2015)) *Por qué en la red de redes se priorizan los contenidos banales, estereotipados y redundantes*. <https://eprints.ucm.es/56474/>

to make people know⁴².

The teaching of communication, when the world is virtualized, is involved in the transmission of knowledge that influences the existence of the present and the construction of the future⁴³. This teaching can already be based on the anthropological dimensions of communication⁴⁴. Making it known that human communication is, from its origins, a resource to orient natural impulses, either towards the primacy of solidarity, or towards the predominance of aggression⁴⁵.

We can *make people know* that virtualization makes universal access to knowledge possible. That sharing knowledge contributes to the emancipation of groups and the autonomy of people.

And make people know that those same technical benefits that humanize can be used to reinforce social dominance and control over individuals and groups... A use that dehumanizes.

We can teach to differentiate such opposing uses. Show how mediators clarify or obscure the links:

- The links: between nature and society,
between the individual and the community,
between the private and the public.
- The links of creation and coercion,
of communication regarding the intervention.
Finally, of social action with ethics.

The history of ideas puts four centuries of socio-historical analysis at our disposal, designed to promote or at least preserve the human character of mediated communication, each time it is transformed by new technologies⁴⁶.

In short: *we can let our students know that the communicative innovations that they mediate are mediated*⁴⁷. That the changes that they may expect in their lives and in those of the

42 See Martín Serrano, Manuel (2006) *¿Para qué sirve estudiar Teoría de la Comunicación* <https://eprints.ucm.es/13145/>. Among other things, it serves, so that it is not forgotten that the objects that we are trying to understand and eventually control by resorting to communicative mediation are human subjects.

43 This is analyzed in Martín Serrano, M. (2014). *Cuando la ciencia de la comunicación está implicada en la existencia del presente y la construcción del futuro*. <https://eprints.ucm.es/56253/>

44 The construction of science and the teaching of communication on anthropological foundations can be examined in Martín Serrano, M. (2013). *Cómo actualizar la enseñanza y el aprendizaje de la comunicación para incorporar los avances teóricos y científicos*. <https://eprints.ucm.es/51783/>

45 In the book *Teoría de la Comunicación, la vida y la sociedad*. (Martín Serrano, Manuel. 2007) I state that communication has evolved as a way to ensure the reproduction of human species, an alternative to the selection of the strongest members: "The protection of those members that Nature would have eliminated has been, in the first place, the reason why we have values and culture". The evolutionary link that was established between communication and solidarity is a selective factor. A result that contradicts the explanation of the origin of humanity shared by social Darwinisms. In the days ahead of virtualization, it will be wise to preserve that link. A summary in *Teoría de la Comunicación, la vida y la sociedad. Entrevista a Manuel Martín Serrano* <http://eprints.ucm.es/13109/>

46 Using communicative inventions in the progress of humanization is an idea that appears with utopias. Visions of the future that refer to aspirations that have not yet been fulfilled, but that those who described them, considered possible and desirable. Utopias relate what can be done with what needs to be transformed. They have provided "Future options" in this case taking into account the transformative potential of technical innovations. In Martín Serrano, Manuel (2008) *Las utopías cuando la comunicación se globaliza* <http://eprints.ucm.es/13227/>. See a historical and prospective vision in Manuel Martín Serrano in DIALNET. Compilation of his writings and studies by other authors on Utopias and counterutopias.

47 To analyze mediations: the paradigm of "Social Mediations" is introduced in Martín Serrano Manuel, 1974, "*L'Ordre du Monde a travers la T.V. Structure du discours électronique*". In Spanish the reference book is "*La mediación social*" (Martín Serrano Manuel 1977). The 2008 edition includes the "*Prólogo para La mediación social en la era de la globalización*" It is available at <http://eprints.ucm.es/10651/>. Publications referring to epistemological support

generations to come are not prescribed by the benefits provided by new technologies, but by the social uses made of such benefits.

Finally, it will be convenient to make people know that, professionals, teachers, theorists or researchers of communication are included among mediators when we consider –or ignore– social uses of virtualization that humanize or dehumanize.

That is why I write –and I conclude– that *we* as communication professionals, teachers, theorists or researchers *are professionals of humanization*.

A noble and fascinating occupation.

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All online links were verified and worked on December 2019

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